

Amendment and Response

Applicant: Daniel J. Fisher

Serial No.: 10/821,068

Filed: April 8, 2004

Docket No.: M120.229.101 / 59692US002

Title: CONVERSION PAD WITH MOISTURE BARRIER

REMARKS

The following remarks are made in response to the Non-Final Office Action mailed May 10, 2006. In that Office Action, the Examiner rejected claims 1, 2, 4, 5, and 13 under 35 U.S.C. §102(b) as being anticipated by Manor et al., U.S. Patent No. 5,807,161 ("Manor"). Claims 3, 6, 7-12, 14, 15, 17, and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Manor. Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over Manor in view of Chelsey et al., U.S. Patent No. 5,785,784 ("Chelsey"). Claims 16 and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Manor in view of Edinger, U.S. Patent No. 6,394,887 ("Edinger"). Claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over Manor in view of Edinger and Chelsey.

With this Response, claims 23 and 24 have been added. Claims 1-17 and 20-24 remain pending in the application and are presented for consideration and allowance.

35 U.S.C. §§102, 103 Rejections

Aspects of the present invention relate to a warpage-resistant conversion pad, serving as the attachment interface between an abrasive article and a back-up pad, with the back-up pad in turn being attached to a sanding tool. As described in the background, back-up pads have long been used as the primary sanding tool/abrasive article interface or connection component, and must be structurally configured for robust, mechanical attachment to the sanding tool. To avoid the need to change the back-up pad to accommodate the attachment system presented by a particular abrasive article, conversion pads have been developed. Unlike back-up pads, the conversion pad presents two different attachment surfaces (e.g., hook or loop surface and a PSA-receptive surface). Because the conversion pad is not directly fastened to the sanding tool, the tool attachment and robustness features that are necessary for back-up pads are not necessary for conversion pads, and are preferably not incorporated into conversion pads to reduce costs. The understood construction and relationship of back-up pads and conversion pads are described in both the pending application, as well as in the background section of Manor.

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With the above in mind, sanding operations are performed in wet (e.g., humid) environments, and the conversion pad is oftentimes subjected to excessive (or reduced) moisture conditions. The Applicant has come to recognize that conventional conversion pad configurations will warp under these conditions, and has devised a solution not previously recognized. As a point of reference, because back-up pads are more structurally substantive (as compared to conversion pads) and are securely fastened to the sanding tool (e.g., via bolts as described in Manor), back-up pad warpage either does not occur or is of no concern. Thus, construction and end-use concerns associated with back-up pads are markedly distinct from those of conversion pads.

Claims 1-6, 12-17, and 20

In light of the above, the claimed conversion pads entail structural features and exhibit resultant features not considered, let alone taught, by Manor. For example, claim 1 recites a conversion pad including a flexible backing material and a moisture barrier, with the moisture barrier protecting the backing material from moisture. The back-up pad of Manor is not a conversion pad. As such, Manor is unconcerned with potential warpage, and makes no reference to “protecting” the reinforcing plate 17 from moisture. Thus, while it is possible that the foam materials described in Manor as being useful for the body 12 may by happenstance exhibit moisture resistance, at no point does Manor suggest, let alone teach, that protecting the reinforcing plate 17 from moisture is a design consideration. Instead, the body 12 material is selected solely to provide a desired overall softness or stiffness to the back-up pad 10. *Manor*, col. 6, ll. 31-39. In fact, Manor describes that the body 12 material can alternatively be wood, a material that is clearly not a moisture barrier. *Manor*, col. 6, ll. 41-43. With this understanding of the body 12 in mind, the reinforcing plate 17 of Manor (analogized in the Office Action as being the claimed “flexible backing material”) is included for the sole reason of providing a rigid surface for mechanical attachment of the back-up pad 10 to the sanding tool. *Manor*, col. 9, ll. 34-47. The only way this “rigid surface” is created is if the plate 17 is rigid. Thus, it is respectfully submitted that Manor does not teach a “flexible backing material” as set forth in

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claim 1. In this regard, the reference in the Office Action to column 8, lines 50-58 of Manor as teaching a “flexible backing material” is not understood; the cited passage describes reducing a thickness of the reinforcing plate 17 to increase overall flexibility of the pad 10. The plate 17 itself remains comprised of a rigid material. In fact, Manor teaches away from the reinforcing plate 17 being “flexible” as described above. For at least these reasons, then, it is respectfully submitted that claim 1 is allowable over Manor.

Claims 2-6, 12-17, and 20 depend from claim 1, and thus for at least the reasons above, are also allowable over Manor. In addition, with respect to the rejection of claim 12, the Office Action again states that the claimed materials are “functional equivalents of polyurethane and the choice of any would be within the level of ordinary skill.” This statement is further clarified at page 5 of the Office Action as follows:

In regard to claims 12 and 14, these materials are shown by applicant to be functional equivalents. Since one of the claimed options is disclosed by Manor, the others in the group are deemed functional equivalents.

It is initially noted that in contrast to the above assertion, Manor does not disclose any of the barrier materials recited in claim 12. Instead, Manor discloses the body 12 material being polyurethane. With this in mind, Applicant respectfully re-asserts that a *prima facie* showing of an alleged “functional equivalent” has not been established. In order to rely upon equivalents as a rationale for supporting an obviousness rejection, the equivalency must be recognized in the prior art, and cannot be based on applicant’s disclosure or the mere fact that the components at issue are functional or mechanical equivalents. *MPEP §2144.06* (citing *In re Ruff*, 118 USPQ 340 (CCPA 1958)). Thus, while the pending application may have recognized that the materials of claim 12 are useful as a conversion pad moisture barrier, nothing in the prior art cited in the Office Action recognizes the alleged functional equivalency of polyurethane relative to the materials of claim 12. Because the Applicant’s disclosure cannot be relied upon to establish functional equivalency, a *prima facie* case of obviousness has not been established with respect to claim 12.

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Similar deficiencies exist with respect to the alleged “functional equivalency” of the limitations of claim 14 relative to Manor. In this regard, it is respectfully noted that the limitation of claim 14 of “said moisture barrier is coated onto said backing material” does constitute a structural limitation. One layer “coated” onto a second layer is structurally distinct from two layers that are mechanically fastened to one another, an adhesive gluing two layers to one another, etc.

With respect to claim 16, the Office Action asserts that it would have been obvious to modify the back-up pad of Manor to eliminate the attachment holes 28 in view of Edinger. In response, it respectfully submitted that a requisite suggestion for the asserted modification does not exist; in fact, Manor teaches away from the asserted combination. The Office Action references column 10, lines 38-44 of Manor as stating that any known means can be used to secure the back-up pad to a power tool. In the immediately following paragraph, however, Manor clarifies this ambiguous statement. In particular, at column 10, lines 46-56, Manor recognizes that the disclosed back-up pad (i.e., a back-up pad with attachment hole(s) 28) may not be compatible with certain power tools. Under these circumstances, Manor specifically describes that the power tool should be modified, not the back-up pad. For example, Manor describes additional use of an intermediate chuck or holder that inherently provides the bolt-receiving holes 28 (FIG. 3) and/or the threaded rod 30 (FIG. 5). Thus, it is respectfully submitted that Manor teaches away from a back-up pad not otherwise having the holes 28. As such, claim 16 recites additionally allowable subject matter.

With respect to claim 20, it is respectfully submitted that not only does Manor teach away from a back-up pad without the attachment holes 28 and thus away from the modification advanced in the Office Action, but even if Manor were modified in view of Edinger, the resultant back-up pad would not entirely encapsulate the reinforcing plate 17 within the modified body 12. To the contrary, when viewing Edinger as a whole, it is clear that the intermediate layer 37 is exposed along a periphery thereof. Thus, modifying Manor in view of Edinger does not result in a backing material entirely encapsulated by the moisture barrier. Thus, claim 20 recites additionally allowable subject matter.

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Claims 7-11

With respect to independent claim 7, the Office Action's assertion that vulcanized fiber board material would "perform equally well" as the rigid metal, wood, etc., materials specifically recited in Manor, is not supported by evidence of record. In this regard, the Office Action states at page 5:

In regard to claim 7, materials with similar functionality are obvious substitutions for disclosed materials. Therefore, vulcanized fiber board would perform functionally similar to thermoplastics, polypropylene, impregnated canvas, etc.

It is respectfully submitted that this equivalency rationale is not supported by any of the cited prior art. To the contrary, it appears the Office Action's conclusion that vulcanized fiber board is a "functional equivalent" of the materials taught in Manor is based only on the Applicant's disclosure; once again, the pending application cannot be relied upon in establishing a *prima facie* case of obviousness. *MPEP* §2144.06. Nothing in Manor, nor in any of the other cited references, recognizes that vulcanized fiber board would perform as the reinforcing plate 17 of the Manor back-up pad 10 in a manner similar to the specific, rigid materials described in Manor. Thus, it is respectfully submitted that claim 7 recites allowable subject matter. Claim 8-11 depend from claim 7, and thus for at least these same reasons are also allowable.

Claim 21

Independent claim 21 recites several of the distinguishing limitations described above. For at least these same reasons, then, it is respectfully submitted that claim 21 is allowable over the cited references. In addition, it is noted that modifying Manor in view of Edinger (to eliminate the attachment holes 28) requires that the reinforcing plate 17 be a magnet as taught by Edinger (else the resultant back-up pad could not be directly attached to the sanding tool). Vulcanized fiber board (as set forth in claim 21) is not a magnet. Thus, the proposed modification does not teach a backing material comprising vulcanized fiber board such that claim 21 is further distinguishable over the cited references.

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Claim 22

Independent claim 22 recites an attachment assembly including a back-up pad for attachment to a sanding tool and a conversion pad for attaching an abrasive article to the back-up pad, with the conversion pad including a flexible backing material and a moisture barrier. In rejecting claim 22 as being obvious over Manor, the Office Action asserts that it would have been obvious to one of skill to provide the claimed attachment assembly via two of the back-up pads of Manor. In response, it is initially noted that the back-up pad of Manor does not include a supporting layer including a flexible backing material as claimed for the reasons described above. In addition, it is respectfully submitted that the provision of both a back-up pad and a conversion pad as part of an attachment assembly, when viewed as a whole, would not have been obvious to one of skill upon reading Manor. *MPEP §2141.02 I*. Regardless of whether it might be possible to interconnect two of the Manor back-up pads to one another, when properly viewed as a whole, Manor clearly teaches away from the invention of claim 22. Namely, the primary purpose of Manor is to eliminate the requirement of both a back-up pad and a conversion pad. *Manor*, col. 1, l. 57 – col. 2, l. 14. The mere fact that Manor could be modified does not render the resultant modification obvious unless Manor also suggests the desirability of the modification. *MPEP §2143.01 III*. Thus, regardless of whether claim 22 is characterized (as in the Office Action) as a duplication of elements, this bare assertion cannot establish a *prima facie* case of obviousness in light of the specific teachings of Manor. It is respectfully submitted, therefore, that claim 22 is allowable over Manor.

Newly Presented Claims

Newly presented claim 23 depends from claim 2 that in turn depends from claim 1. Thus, for at least the reasons above, claim 23 is allowable. In addition, claim 23 recites that a thickness of the backing material is greater than a thickness of either of the moisture barrier layers (with the backing material being interposed between the moisture barrier layers). Support for this limitation is found, for example, in FIG. 1, as well as at page 5, lines 13-14 and page 6, lines 6-9 in which a barrier layer is described as being coated onto a backing material; inherently, the

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coated barrier is thin (as compared to a thickness of the backing material). In contrast, Manor clearly describes that the body 12 (analogized in the Office Action as being the claimed "moisture barrier") is thicker than the reinforcing plate 17. *Manor*, col. 8, ll. 30-31 and col. 8, ll. 55-56. This distinction further reflects the structural differences between a back-up pad and a conversion pad. Namely, the Manor back-up pad relies upon the body 12 material to effectuate desired performance characteristics during sanding; the reinforcing plate 17 is optional, and primarily serves to provide an internal, rigid surface for attachment of a bolt or other threaded component. Thus, the body 12 is thick and the reinforcing plate 17 is thin. Conversely, the claimed backing material serves as the primary support structure for the conversion pad, such that the backing material is thick and the moisture barrier is thin. Thus, it is respectfully submitted that newly presented claim 23 recites additionally allowable subject matter.

Newly presented claim 24 depends from claim 1, and thus, for at least the reasons above, is allowable. In addition, claim 24 recites that the backing material characterized as exhibiting warpage in the presence of water. Support for this language is found, for example, at page 3, lines 16-23 and page 6, lines 5-17 (where it is described that the backing material, without a moisture barrier covering, experienced warpage in high humidity conditions, whereas conversion pads having the identical backing material along with moisture barrier layers experienced significantly less warpage). In contrast, it is respectfully submitted that Manor does not teach or suggest the reinforcing plate 17 being formed from a material that is both flexible and that will warp in the presence of water. For example, the preferred reinforcing plate 17 material is described as polypropylene; polypropylene does not warp in the presence of water. Similarly, virtually all other materials listed in Manor at column 8, lines 48-54 do not warp in the presence of water. While Manor further alludes to wood as being a material useful for the reinforcing plate 17, wood is not flexible such that the limitations of claim 24 (that otherwise depend from claim 1) are not met. It is respectfully submitted, therefore, that newly presented claim 24 recites additionally allowable subject matter.

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CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 1-17 and 20-24 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1-17 and 20-24 are respectfully requested.

Applicants hereby authorize the Commissioner for Patents to charge Deposit Account No. 50-0471 in the amount of \$100.00 (to cover the fees as set forth under 37 C.F.R. 1.16(i)).

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to either David B. Patchett at Telephone No. (651) 736-4713, Facsimile No. (651) 736-3833 or Timothy A. Czaja at Telephone No. (612) 573-2004, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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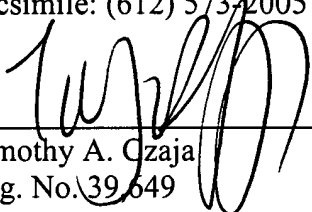
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CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 10th day of August, 2006.

By: 

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